

US EPA ARCHIVE DOCUMENT

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON, D.C. 20460OFFICE OF
PREVENTION, PESTICIDES AND
TOXIC SUBSTANCES

MEMORANDUM

PC Code: 123000
DPBarcode: D278258**SUBJECT:** Isoxaflutole 2-year Tile Drain study, New Holland, Ohio**FROM:** William P. Eckel, Ph.D.
Environmental Risk Branch II
Environmental Fate and Effects Division (7507C)*William P. Eckel 2/14/02***TO:** Dan Kenny
Registration Division (7505C)**THRU:** *for* Tom Bailey, Branch Chief
Environmental Risk Branch II / EFED (7507C)*Isidabel 2/14/02***DATE:** February 15, 2002

This memorandum provides EFED's analysis of the study results from a tile drain study with isoxaflutole in New Holland, Ohio. A list of the quarterly status reports covered by this memo is given in Table 1.

This study was one of four tile drain studies conducted for isoxaflutole in Ohio and Iowa. It was originally planned to span one growing season, but due to a drought in that part of Ohio during 1999, little or no tile drainage was produced. The study was extended for a year, with a second application of isoxaflutole, in hopes that enough rain would fall to produce some tile drain flow. Rainfall was about twice average in the first two months of 2000, so adequate tile drainage was obtained.

Test Site Description

The test site is an isolated field of approximately 17 acres, located 3.5 miles south of the town of New Holland in Fayette county, Ohio. The soil is Millsdale silty clay loam with a slope of less than 2%. The site has 13 irregularly spaced tile lines running approximately north-south, with lengths up to 868 feet. The tile lines empty into a drain system, 3 to 4 feet below the surface, at the west edge of the field. The drain empties into a ditch which in turn empties into Compton Creek.



2014334

Samples were collected at the point where the tile system drains into the ditch ("drain"), at the point where the ditch flows into the creek ("ditch"), and 100 yards downstream of the ditch in Compton Creek ("Compton").

Conservation tillage practices are used at the site. The field was prepared by disking three times prior to application. Application of isoxaflutole at the maximum label rate were made on May 4, 1999 and May 26, 2000.

Results

The study results for 2000 are similar to those seen in the other tile drain studies with daily sampling. As shown in figure 1, concentrations of the degradate RPA202248 were highest (peak value over 10 ppb or 10,000 parts-per-trillion) in the drain soon after the second application in 2000. Concentrations declined through June and July to between 10 and 100 parts-per-trillion.

The study results for 1999 differ, however. Because of the drought, little or no tile drainage was produced through the summer and into the fall. When the rains returned in the winter of 2000, tile flow resumed, and RPA202248 exceeded 300 ppt in January. The concentration of RPA202248 declined to about 100 ppt by March and 30 ppt by April.

This behavior suggests that in the absence of adequate rainfall, isoxaflutole persists in soil where it remains to be re-mobilized at a later time. A terrestrial field dissipation (TFD) study in California (MRID 43904838) also suggested that isoxaflutole would persist in soil if rainfall was inadequate. The dissipation half-life of RPA202248 in that study was 133 days, compared to about a month at the three other TFD sites.

Recommendations

Based on the observations, EFED recommends that the use of isoxaflutole be limited or disallowed in regions that are subject to frequent drought. It is possible that soil contaminated with isoxaflutole (i.e., soils from which the chemical has not dissipated into surface waters because of inadequate rainfall) could dry out and become airborne. The contaminated dust could land on sensitive crops and cause damage. The recent incident with Oust herbicide in Idaho is an example of this scenario.

Table 1: Studies Covered by this Memorandum

Study Title	MRID#	DP Barcode
Balance WDG Herbicide: Tile Drain Monitoring Study, New Holland, Ohio. Interim Status Report. 8/21/2001	454972-01	278258
Quarterly Status Report 8/31/2000	452458-05	270075
Quarterly Status Report 3/23/2000	451133-07	266295
Quarterly Status Report 12/14/1999	449960-06	262819
Quarterly Status Report 8/31/1999	449314-07	260920

Figure 1: New Holland OH 2-year Tile Drain study

